Engineering Division
W/OS031 : DN&FJZ

COMMUNICATION EQUIPMENT MODIFICATION NOTE 31
(for Electronics Technicians)

SUBJECT : Installation of the Airflow Switch Assembly (P/N 410445) in the SR-402A Exciter.

PURPOSE : To prevent the overheating and eventual destruction of the driver assembly (P/N 402345) and PA assembly (P/N 402370) due to an exciter exhaust fan failure.

EQUIPMENT AFFECTED : B220,B222, and SR-402 SPS NOAA Weather Radio (NWR) Transmitters. Perform this modification on both the primary and secondary transmitters of the SR-416D.

PARTS REQUIRED : Parts for the air flow switch mod kit, listed below, will be shipped to all affected sites by the NWR national maintenance contractor. No action is required by the site to obtain this kit.

Quantity	Description	P/N
1	Airflow Switch	P/N 410445
1	Airflow Switch Bracket	P/N 402119
1	Lo&washer	P/N HO6003
1	#6 x 1/2 Pan Head Screw	P/N HO6084
8	Ty-wrap	P/N MT0701

TOOLS AND TESTEQUIPMENT REQUIRED : Soldering Iron
Pin extraction tool (P/N PM0010)
Assorted Philips and flat tip screwdrivers

TIME REQUIRED : 1 hour per transmitter

EFFECT ON OTHER INSTRUCTIONS : Modification Note 30 should be performed in concurrence with this modification note.

VERIFICATION STATEMENT : This modification was successfully installed and tested at INTEC Headquarters, Scottsville, New York; the National Weather Service Training Center, Kansas City, Missouri; and the NWS Headquarters, Silver Spring, Maryland.

GENERAL

Failure of the exhaust fan in the exciter chassis may cause overheating and eventual destruction of the driver/PA assembly (A2). This modification note describes the installation and testing of an airflow switch, which senses the lack of air circulation inside the driver/PA assembly. When an exhaust fan fails, air circulating through the compartment ceases: opening the air flow switch, disconnecting the key inhibit line from ground, and unkeying the exciter.

NOTE

1. This modification should **NOT** be performed during inclement weather or when the transmitter is required to be operational.

2. Transmitter downtime should be coordinated with station operations personnel.

PROCEDURE

A. Disassembly Instructions

1. For standby transmitter: Deactivate the transmitter by turning the power amplifier unit (SR410A) and exciter (SR402A) FUNCTION switch to the **OFF** position. Disconnect the AC input to the SR-416/402 SPS transmitters.

2. For active transmitter: Deactivate the transmitter by turning the power amplifier unit and exciter FUNCTION switch to the **OFF** position. Note: **Do not turn off power supply circuit breaker;** amplifier tube damage may occur. Power amplifier blower will continue to operate and power amplifier indicators will remain illuminated for at least 60 seconds to allow gradual cooling of the amplifier tube. Disconnect the AC input to the SR-416/402 SPS transmitters,

3. Remove the four screws securing the exciter to the transmitter rack.

4. Extend the exciter on its slides, and remove the 15 screws securing the top cover.

5. Remove cables W8P1, WI PI, W13P1, and W7P1 from the back of the exciter.

6. Remove the exciter from the rack and place it on the nearest work space. If work space is not available, provide enough work area in the back of the exciter by pulling the exciter drawer out to its fullest extension.

CAUTION

To prevent injury to personnel and/or equipment, do not extend the drawer beyond the rail stops.

7. Remove the middle screw on the front right hand side of the driver/PA air intake compartment with a Phillips screwdriver (Figure I), (also Figure 10-3, page IO-9 of the NWSTC manual).

8. Remove the directional coupler assembly (A3). Place the directional coupler on top of the driver/PA Assembly (A2).

B. Installation Instructions

1. Using the supplied #6 x 1/2 in. pan head screw (P/N H06084), and lock washer (H06003), install the airflow switch assembly bracket (P/N 402119) to the air intake compartment. Ensure that the ground lug, attached to the black wire coming from the switch, is under the screw head (Figure 1).

CAUTION

Ensure the switching function of the installed airflow switch is not inhibited when moving the plastic vane flap/metal arm through its normal range of motion. Slight adjustments may be made by bending the metal arm holding the plastic flap. Verify that the honeycomb or the inductor coil on the RF/Audio Assembly (Al) does not prevent the air flow switch from switching. Over bending the metal arm may impede the switching function of the airflow switch.

2. Locate connector J3 attached in the rear of the exciter unit (Figure 10-3, page IO-9 in the NWSTC manual). Locate pin 3 (green wire) in the top row of J3 (Figure 1).

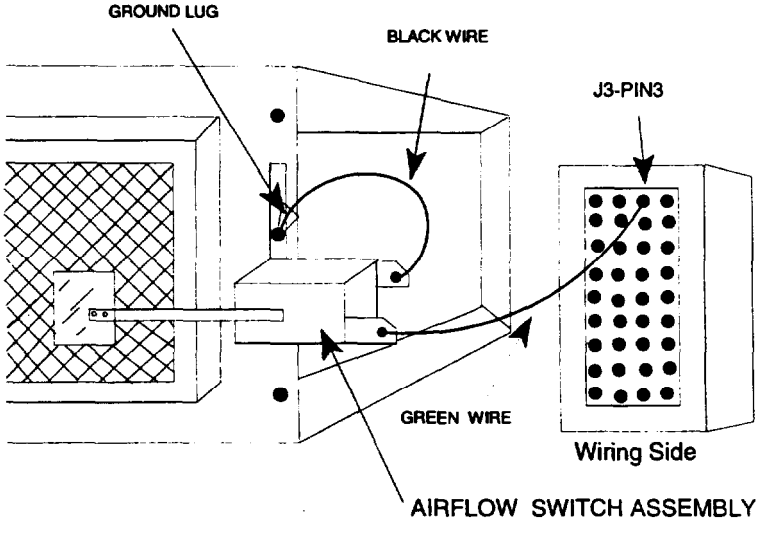


Figure 1

Driver/PA Assembly (A2)

3. Remove Pin 3 from J3 connector with the extractor tool (P/N PM0010). To extract pin 3, locate the plug-in end of connector J3 (Figure 2) and straddle the pin on the flat using the pin extraction tool. Carefully push the tool into the connector until the pin begins to move out. Gently pull on the green wire to completely remove the pin.

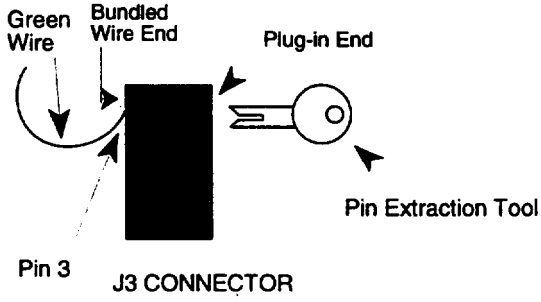


Figure 2

Pin Extraction Method

4. Solder the new green wire, coming from the airflow switch assembly, to the pin and wire removed from J3-3. This will result in two green wires attached to the pin. If the existing pin is unusable, a new pin (PM0008) is included in the modification kit. Insert the pin back into J3-3, verifying that the pin locks into place.

5. Route and tie-wrap the new green wire into the wire bundle.

6. Reattach the directional coupler assembly (A3) to the exciter chassis.

7. If the exciter unit was removed from the rack, place it back in its rails and leave it in the extended position with the cover removed.

8. Reinstall cables W1P1, W13P1, and W7P1.

NOTE

Do not discard the pin extraction tool. Its use will be required in subsequent modification notes.

C. Functional Test

1. Connect the exciter RF output (J2) to a 50 ohm dummy load.

2. Reconnect AC power to the transmitter.

3. While exerting sideward pressure, pull the exciter front panel interlock switch (S3) plunger out to defeat the interlock.

4. Turn Exciter Switch (S1) to the LOCAL Position. The exciter POWER ON indicator should illuminate and the exhaust fan should be running. Set the exciter POWER LEVEL control to MIN.

NOTE

The exciter unit is equipped with a front panel MICROPHONE connector to allow use of a microphone to key the exciter. If a microphone is not <available, the exciter can be keyed by connecting pin 6 (Ground) to pin 1 (Keyline) using an insulated wire with a 1/4 in. striped from both ends. The MICROPHONE connector pin locations and designations are shown in Figure 3.

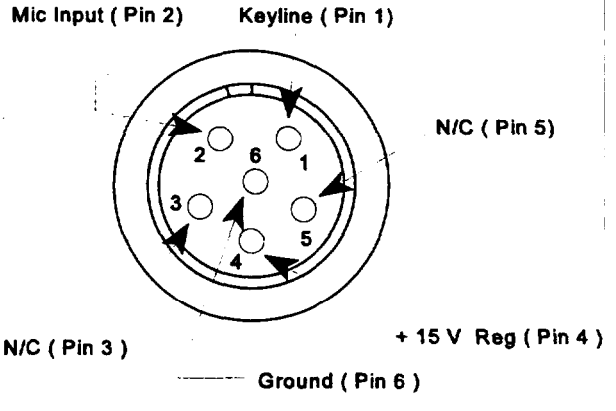


Figure 3
Exciter Microphone Connector Pin Designations

5. With the fan running, the exciter cover off, and the exciter Keyline activated (either by microphone or jumper wire), the red exciter TRANSMIT light should **not** be illuminated.

6. Cover the top of the driver/PA assembly compartment with a piece of cardboard or a manual to ensure proper airflow. The plastic vane of the airflow switch should be drawn inward and the red exciter TRANSMIT light should illuminate. The illumination of the red TRANSMIT light indicates that the air flow switch is in an ON/CLOSED state (normal operation).

7. Temporarily place the piece of cardboard over the exhaust end (back of exciter unit) of the exciter fan to restrict the air flow from the compartment. The plastic vane of the airflow switch should move to its relaxed position and the red exciter TRANSMIT light should be extinguished. The Air Flow Switch is now in an OFF/OPEN state. This switch position opens the key inhibit line to the pre-regulator assembly (A4) and unkeys the exciter.

NOTE

An alternative method of simulating a fan failure is to remove the fan power plug from J6 (in back of exciter unit), while observing the same actions as detailed in the step above.

D. Reassembly Instructions

1. Turn the exciter (SR402A) FUNCTION switch to the **OFF** position.

2. Remove cardboard cover from the exciter. Remove the microphone or jumper wire from the MICROPHONE jack (J1).

3. Remove the connection to the dummy load at J2 and reconnect W8P1.

4. Replace the cover and the 15 screws on the exciter. Slide the exciter back into the transmitter rack and replace the four screws.

5. In a dual transmitter system, repeat this process for the secondary transmitter.

6. Update the Parts List Table on page IO-16 in the NWSTC Manual to reflect the installation of the Airflow Switch Mod Kit. Make a pen and ink change to the Exciter Unit Schematic diagram (Figure 10-4, page 10-13 NWSTC Manual) to reflect the Airflow Switch modification as shown in Figure 4.

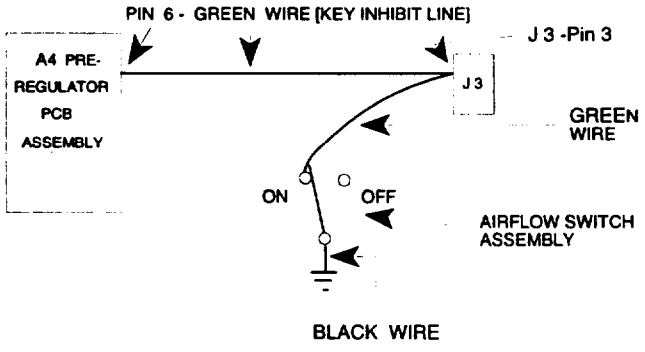


Figure 4

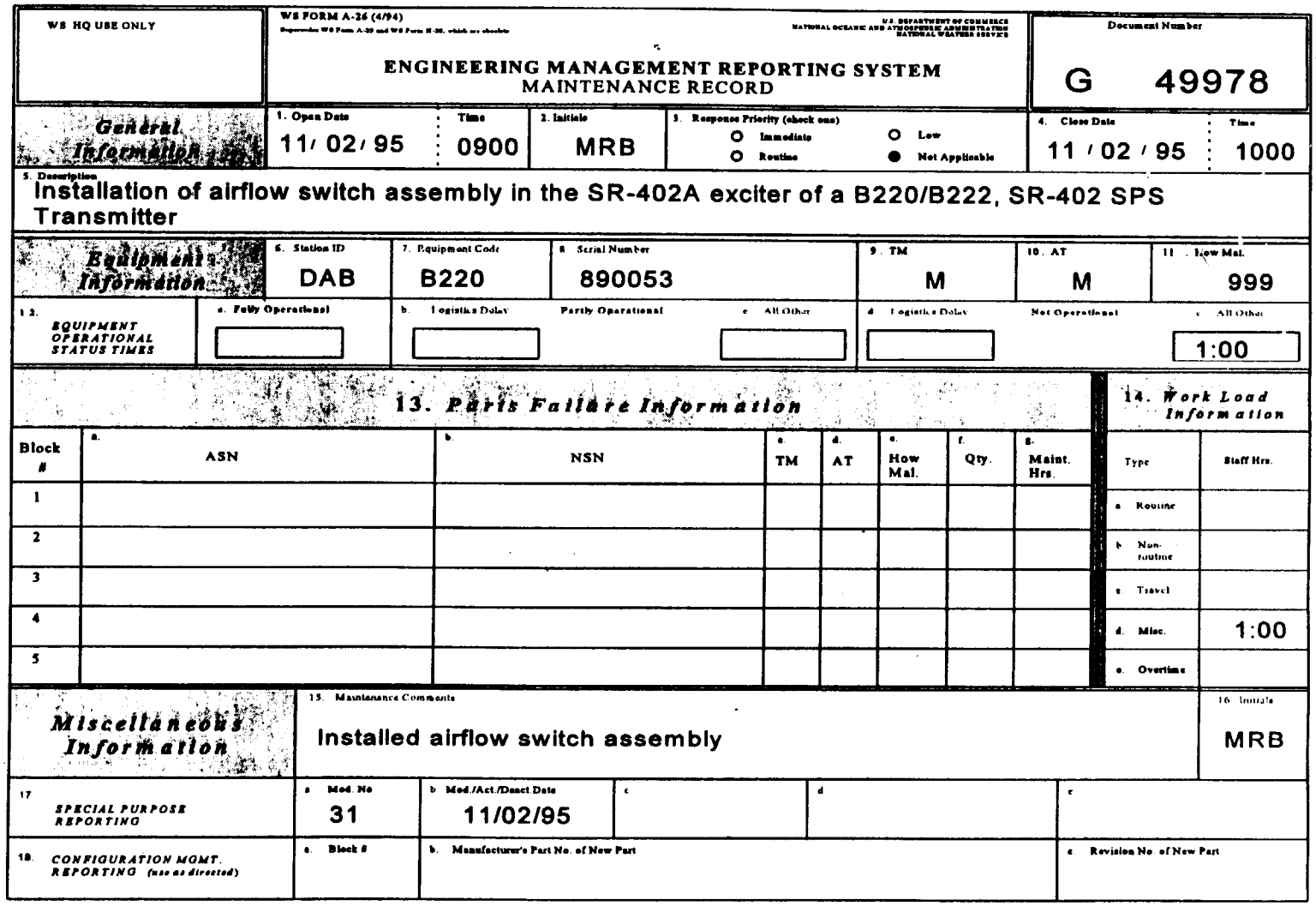
Airflow Switch Assembly Schematic

E. Reporting Modification

Target date for completing this modification is 30 days after receipt of this modification note. Report completed modifications on WS Form A-26, Maintenance Record, using instructions in EHB-4, part 2. Use reporting code B220 or B222 (Figure 5). Since this modification is installed in conjunction with modification note 30, a separate WS Form A-26 should be completed for each modification note.

Dominic Bosco

Acting Chief, Engineering Division



WS HQ USE ONLY

WS FORM A-26 (4/94)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

ENGINEERING MANAGEMENT REPORTING SYSTEM
MAINTENANCE RECORD

Document Number: G 49978

General Information

1. Open Date	Time	2. Initials	3. Response Priority (check one)	4. Close Date	Time
11/02/95	0900	MRB	O Immediate O Low O Routine ● Not Applicable	11/02/95	1000

5. Description: Installation of airflow switch assembly in the SR-402A exciter of a B220/B222, SR-402 SPS Transmitter

Equipment Information

6. Station ID	7. Equipment Code	8. Serial Number	9. TM	10. AT	11. How Mal.
DAB	B220	890053	M	M	999

12. EQUIPMENT OPERATIONAL STATUS TIMES

a. Fully Operational	b. Logistics Delay	Partly Operational	c. All Other	d. Logistics Delay	Not Operational	e. All Other
						1:00

13. Parts Failure Information

Block #	a. ASN	b. NSN	c. TM	d. AT	e. How Mal.	f. Qty.	g. Maint. Hrs.
1							
2							
3							
4							
5							

14. Work Load Information

Type	Staff Hrs.
a. Routine	
b. Non-routine	
c. Travel	
d. Misc.	1:00
e. Overtime	

Miscellaneous Information

15. Maintenance Comments: Installed airflow switch assembly

16. Initials: MRB

17. SPECIAL PURPOSE REPORTING	a. Mod. No	b. Mod./Act./Deact Date	c	d	e
	31	11/02/95			

18. CONFIGURATION MGMT. REPORTING (use as directed)	a. Block #	b. Manufacturer's Part No. of New Part	c. Revision No. of New Part

Figure 5

Form A-26